Wild Goose Storage, LLC

Mathieu Fournier
Manager, Reservoir Engineering
Phone: (403) 513-8657
Mathieu.fournier@niskapartners.com

March 4, 2016

Department of Conservation
801 K Street, MS 24-02
Sacramento, CA 95814
UIC.Regulations@conservation.ca.gov

Attention: UIC Discussion Draft

Dear Sir or Madame:

Re: Underground Injection Control Regulations – Discussion Draft

In response to *the Notice of Pre-Rulemaking Public Comment Period on the Development of Updates to Underground Injection Control Regulations* issued by the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division) on January 21, 2016, Wild Goose Storage, LLC (Wild Goose) respectfully submits the following comments on Chapter 4. DEVELOPMENT, REGULATION, AND CONVERSATION OF OIL AND GAS RESOURCES Subchapter 1. Onshore Well Regulations for consideration:

1. Proposed subsection 1724.7(a)(1)(E)(ii) regarding Project Data Requirements requires that wells not used for injection or production for more than two years have a cement plug across all hydrocarbon zones. Note that most underground natural gas storage reservoirs include observation wells which are not used for injection or withdrawal, but for data acquisition such as static reservoir pressure monitoring. Wild Goose has four observa tion wells that are not used for injection or withdrawal. Accordingly, Wild Goose requests that wells not used for injection or withdrawal, such as observation wells, should be exempt from any requirement to be plugged.

2. In reviewing proposed subsections 17 24.7 and 1724.7.2, Wild Goose notes that the change from liquid to fluid at 1724.7(a)(3)(G) does not correspond with the Injection Fluid Analysis at 1724.7.2(a) where the testing outlined is for liquids as opposed to gaseous injection fluids. Accordingly, Wild Goose suggests that either 1724.7(a)(3)(G) be changed back to liquid from fluid or that two types of Injection Fluid Analysis , one for liquid injection fluids and another for gaseous injection fluids, be developed to avoid confusion.

3. Subsection 1724.10(g) proposes to require that tubing and packer be set immediately above the zone of injection for pipeline quality gas injection wells , whereas it is currently not required . Wild Goose argues that pipeline quality gas injection wells should be allowed to continue to operate without tubing & packer if they were constructed according to modern design standards (i.e. the casing is cemented along its entire length) , are inspected as per the additional measures proposed and approved in the "Risk Management Plan " required under 1724.9 (g) of the Emergency Regulations made effective on February 5, 2016 and do not show excessive casing wear.

Wild Goose Storage, LLC

Mathieu Fournier
Manager, Reservoir Engineering
Phone: (403) 513-8657
Mathieu.fournier@niskapartners.com

Pipeline quality gas is a non-corrosive fluid and gas storage wells without tubing and packer tend to be the norm rather than the exception in the natural gas storage industry. In fact, all of the salt cavern storage wells in the U.S. and Canada that Wild Goose is aware of are designed without tubing and packer.

There are nearly 15,000 gas storage wells in the U.S. and Canada . An event such as the Aliso Canyon well leak is extremely rare and in this case was foreseeable and preventable. It took over 61 years (the well was drilled in 1954) for the casing of the Aliso Canyon well to wear down enough to develop a leak. It is a fair assumption that running casing thickness inspection logs every 20 years would have been sufficient to see the trend of casing wear and react to it by either remedial work (such as remedial cementation of the production casing, running and cementing a casing liner, cathodic current protection applied to the casing , tubing & packer, or other) or plugging & abandonment of the well. This trend of casing corrosion and leaks was a known trend at the Aliso Canyon field, based on casing inspection logs run on ot her wells in the field , as explained in the following statements from the " SoCalGas Direct Testimony Of Phillip E. Baker Underground Storage – November, 2014, Before the Public Utilities Commission of the State of California, Application A.14-11-XXX, Exhibit SCG-06":

> *"Reactive-type work in response to identified safety -related conditions observed as part of routine operations has increased in recent years. In fact, a negative well integrity trend seems to have developed since 2008. The increasing number of safety and integrity conditions summarized in Table PEB -8 below is attributed primarily to the frequency of use, exposure to the environment, and length of time the wells have been in service."*
>
> AND
>
> *"External casing corrosion has been observed at relatively shallow depths in the production casing, and at deeper intervals near the Aliso Canyon shallow oil production zone at which is being water-flooded."*

All storage wells should not be treated as if they are just about to develop an un-controllable leak like the one at Aliso Canyon. Gas storage wells that were constructed according to modern design standards (i.e. the casing is cemented along its entire length) , are inspected as per the additional measures proposed and approved in the "Risk Management Plan" re quired under 1724.9 (g) of the Emergency Regulations made effective on February 5, 2016 and do not show excessive casing wear, should be allowed to operate without tubing & packer. Running tubing & packer should be treated as one of the many remedial optio ns to be considered if the casing of a gas storage well does not meet certain minimum criteria.

Wild Goose was granted a specific exemption from the requirement for tubing and packer by the Division in its project approval letter. Wild Goose believes that this exemption should be maintained and is prepared to collaborate with the Division to satisfy them that it can continue to operate with an impeccable safety record without tubing and packer in its storage wells.

Wild Goose Storage, LLC

Mathieu Fournier
Manager, Reservoir Engineering
Phone: (403) 513-8657
Mathieu.fournier@niskapartners.com

4. Also under 1724.10(j)(1) and (2):

(j) "A mechanical integrity test (MIT) must be performed on all injection wells to ensure the injected fluid is confined to the approved zone or zones. An MIT shall consist of a two -part demonstration as provided in ~~subsections~~ subdivisions (j)(1) and (2).

(1) Prior to commencing injection operations, each injection well must pass a pressure test of the casing-~~tubing annulus~~ to determine the absence of leaks. Thereafter, the ~~annulus of~~ casing of each well must be tested at least once every five years …"

Wild Goose would like to point out that:

a. Both tests (1) and (2) serve the purpose to determine if a well is already leaking, not if it is about to leak.

b. Test (1) is suited to wells with liquid filled wellbores/annulus as opposed to gas filled wellbores/annulus. Therefore it is not suited for gas storage wells without tubing and packer.

c. Test (2) is better suited for determining if gas is leaking out of a gas filled wellbores/annulus. It is also required more frequently (every year).

d. Additional inspection measures are required to be implemented for gas storage wells as per the "Risk Management Plan" required under 1724.9 (g) of the Emergency Regulations made effective on February 5, 2016 : " *The protocols for verifying and demonstrating well integrity shall not be limited to compliance with the mechanical integrity testing requirements under Section 1724.10(j) , and shall include consideration of the age, construction, and operation of each well.*"

In light of the above, Wild Goose requests that gas storage wells without tubing and packer be exempt from the requirement to perform the testing procedure described in 1724.10(j)(1) every five year, given that the objective of this test is redundant to 17 24.10(j)(2) which is performed every year , is not suited to gas filled wellbores/annulus and, for gas storage wells, will be replaced by better suited preventative inspection measures that will be implemented as part of the "Risk Management Plan" required under 1724.9 (g) of the Emergency Regulations made effective on February 5, 2016.

Wild Goose was granted a specific exemption from the requirement to pressure test every five years {1724.10(j)(1)} by the Division in its project approval letter. Wild Goose believes that this exemption should be maintained and is prepared to collaborate with the Division to satisfy them that it can continue to operate with an impeccable safety record by continuing to test for leaks every year as per {1724.10(j)(2)} and implem enting the additional inspection measures in the "Risk Management Plan" required under 1724.9 (g) of the Emergency Regulations made effective on February 5, 2016.

Wild Goose Storage, LLC

Mathieu Fournier
Manager, Reservoir Engineering
Phone: (403) 513-8657
Mathieu.fournier@niskapartners.com

Wild Goose appreciated the opportunity to submit these comments for consideration by the Divi sion and should you have any questions, comments or concerns, please do not hesitate to contact the undersigned.

Sincerely,

WILD GOOSE STORAGE, LLC

Mathieu Fournier
Manager, Reservoir Engineering